

CLAIMS

1. A heat-polymerizable, foam sheet-forming composition used to form heat conductive foam sheets, comprising, in combination, the following components:
 - a heat-polymerizable binder component comprising at least one (meth)acrylic monomer or its partial polymer,
 - a heat conductive filler,
 - a heat polymerization initiator for said binder component, and
 - a foaming agent.
2. A foam sheet-forming composition according to claim 1, in which said (meth)acrylic monomer comprises a (meth)acrylic monomer having an alkyl group of no more than 20 carbons.
3. A foam sheet-forming composition according to claim 1 or 2, further comprising an acrylic polymer which is composed mainly of an acrylic acid ester wherein the ester portion has 1 to 20 carbons, which has a glass transition temperature of no higher than 20°C and a weight-average molecular weight of from 500 to 100,000, and which has substantially no functional groups.
4. A foam sheet-forming composition according to any one of claims 1 to 3, in which said foaming agent comprises an inorganic foaming agent, an organic foaming agent and/or thermal expanding microcapsules.
5. A foam sheet-forming composition according to any one of claims 1 to 4, in which said foaming agent is used in an amount of 0.1 to 20 parts by weight with respect to 100 parts by weight of the (meth)acrylic monomer.
6. A heat conductive foam sheet comprising a heat polymerized molded article made from a foam sheet-forming composition described in any one of claims 1 to 5.

7. A heat conductive foam sheet according to claim 6, in which said heat-polymerizable binder component further comprises a cross-linking agent, and the acrylic polymer produced as a binder upon polymerization and cross-linking of said binder component is a cross-linked product so that the resulting product has a weight-average molecular weight of less than 200,000 in the polymer chain thereof, a shearing storage modulus (G') of 1.0×10^3 to 1.0×10^5 Pa at the frequency of 1 Hz and 20°C, and optionally a loss tangent ($\tan \delta$) of 0.2 to 0.8.
8. A heat conductive foam sheet according to claim 6 or 7, in which the heat conductivity is 2 W/mK or greater.
9. A heat conductive foam sheet according to any one of claims 6 to 8, in which the void volume is 5 to 50 vol%.
10. A process for producing a heat conductive foam sheet, comprising:
preparing a foam sheet-forming composition described in any one of claims 1 to 5,
molding said composition into a sheet, and
heating said composition either during or after the sheet-molding step to simultaneously accomplish reactions for heat polymerization of said binder component and foaming of said composition.
11. A process for producing a heat conductive foam sheet according to claim 10, in which sheet-molding is carried out by calender molding or press molding either in the presence or in the absence of a liner.
12. A process for producing a heat conductive foam sheet according to claim 10 or 11, in which heating is carried out at a temperature of 50 to 200°C.